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# LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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## CONSTRUCTION REPORT, U. S. NAVY.

In the annual report of the chief of the U. S. Navy bureau of construction, it is recommended that each navy yard be supplied with sufficient repair work to keep a staff of skilled workmen constantly employed, thus insuring a complement of skilled shipbuilders when an emergency requires prompt repairs to be made. This feature has been embodied in previous reports, but up to the present time the yards have been worked in a spasmodic way by carrying out only the most necessary repairs in a limited time and then allowing the staff to disperse.

In support of the foregoing view, chief naval constructor Hichborn says: "The modern steel fleets require more attention than the wooden ships to keep them in an efficient state, and it is absolutely necessary that our principal navy yards should be better equipped. During the past year the keels of three new vessels have been laid, viz.: the gun-boats at Newport News. Three vessels were launched—the battle ship Oregon, the protected cruiser Minneapolis and the torpedo boat Ericsson. The bureau has prepared, for the information of bidders, a circular defining the chief characteristics of the three authorized torpedo boats, to cost $450,000. The average speed to be maintained for two consecutive hours is to be 24½ knots." Speaking of dry docks, Chief Constructor Hichborn says: "In the event of sudden war, this country would be in a deplorable condition, on account of the limited number and lack of capacity of its government docks, and, unlike Great Britain, it has comparatively few private docks which could be pressed into service in an emergency. It is only under the most favorable conditions of tide that some of our largest vessels can be docked at all, and in war this might involve the practical fighting and cruising efficiency of some of our most valuable ships." An experimental tank for testing models is also urgently recommended. The vessels to be added to the navy this year are the Minneapolis, Columbia, Marblehead, Montgomery, Olympia and Castine, the Maine and the Texas. The Indiana and Massachusetts can be completed in seven months and the Oregon in four, when the necessary armor and ordnance materials are received.

## WATERWAYS TO THE COAST.

At the annual meeting and banquet of the Milwaukee bankers' club, held last week, Edwin Abbot, who delivered an address on "How to improve Milwaukee commerce," said that Milwaukee would become a great city if deep waterways were secured in the Great Lakes. He said that the Lakes Michigan and Superior were the nearest water to the Pacific on the direct route from Asia to Europe, and the time that sees deep water transportation from the Great Lakes to the Atlantic would be the time when the Great Lakes would be part of the direct route from Asia to Europe. Mr. Abbot stated that half the railroads of the country were tributary to the lake region.

## INLAND LLOYD'S SUPPLEMENT.

The November supplement of the Inland Lloyds Vessel Register, just issued by Manager McLeod, contains the particulars of one new steamer, the Globe, 2,279 tons net, classed A1, J. H. Ball et al. owners, hailing from Rockport, O., and valued for insurance purposes at $185,000. The propeller Australasia is given an insurance rating of $100,000, but no particulars as to class. The former car ferry Transfer, recently purchased by Mr. John Corrigan, of Cleveland, is given a B1+rating and a valuation of $5,500. The barge Wm. Case is classed B1½, valued at $1,500, and the schooner Mineral State and barge Peshtigo have been withdrawn.

## AN ALUMINUM TORPEDO BOAT.

An aluminum torpedo boat built by Yarrow, in England, for the French government has just had a trial on the Thames. The boat is 60 feet long, 9 feet 3 inches beam and weighs with the water in her boilers nine tons eight hundredweight, the hull alone weighing just two tons. The material used was an alloy of 94 per cent. of aluminum and 6 per cent. of copper. A striking result obtained from using the lighter metal was a gain of three and one-half knots over the steel boat of the same model, the aluminum boat making twenty and one-half knots; but it was also made possible to use thicker scantling, which stiffened the boat so that the vibration was not appreciable. The boat is easier to lift and more buoyant in the water. The cost of the metal was over $5,000, or nearly twice as much as a steel boat of the same model.

## NEW ATLANTIC RECORD.

The Cunard Line steamer Lucania arrived at New York last Friday from Liverpool, having broken her previous and fastest passage on record by twenty-five minutes. She made the run from Queenstown in five days, seven hours and twenty-three minutes, covering a distance of 2,779 miles, at an average speed of 21.81 knots an hour. Her days' runs were 529, 534, 533, 549, 544 and 90 knots to Sandy Hook. The average hourly speed was 21.81, which is .08 behind her best hourly average, made, however, on a longer course. She experienced moderate east and northeast winds, with high seas and generally hard weather during the passage.

The Lucania still holds the easterly record, made on her voyage finished September 14th, in five days, eight hours and thirty-eight minutes, which was then her exact time; also for the westerly record. He last record was made September 28th, when she covered 2,782 miles, only varying three miles from her present course, in five days, seven hours and forty-eight minutes. The best times of her sister ship, the Campania, are: Westward—August 17, five days, nine hours and twenty-nine minutes. Eastward—August 31, five days, ten hours and forty-seven minutes.

## A DEMAND FOR NAVAL SEAMEN.

The crew, numbering 250, of the double turretted monitor Miantonomah, which arrived on Sunday last at League Island from the Brooklyn Navy Yard, will be transferred to the Minneapolis when she is commissioned. It is extremely doubtful if a crew can be found for the Olympia, unless, in addition to the Monterey, another vessel is placed out of commission. The navy department found it hard work to supply the Minneapolis with a crew, and is now trying to gather sufficient men together for the Marion, ordered to Hawaii. To the navy officials the necessity for more men grows stronger every day, and their first communication to congress at its next session will, in all probability, relate to legislation which will permit an increase in enlistments.

The United States Navy, when its complement of men is full, has 9,000 seamen on its rolls. With several new warships nearly completed, it has become painfully apparent that the number of men is insufficient to man the vessels. A proposition will be made to the next congress to increase the naval force to 11,000, but as there is no assurance that the law will go through at once, if it goes at all, the department may find itself badly off for brawn and sinew. If the navy requires more seamen at this time, and there are only 17 per cent native born now on the rolls, the earlier a citizenship crusade is inaugurated the better Americans we will have a decade hence. We have but a scant merchant navy now, so that we can hardly recruit from that source.

# NEWS AROUND THE LAKES.

## CHICAGO, ILL.

*Special Correspondence to The Marine Record.*

Capt. J. W. Westcott, marine reporter of Detroit, was in Chicago, was in Chicago Tuesday.

J. G. Keith & Co. chartered the steamer Iron Chief for wheat and consort Iron Cliff for oats to Buffalo at 7/8 of a cent.

The steamer Belle was sold by Harry Byrnes to H. J. O'Hara, consideration, some land at Fox River valued at $3,500.

Palmer, Cook & Calbick chartered the steamer W. P. Ketcham and consort, George B. Owen for wheat from Toledo to Buffalo at 1¼ cents.

Capt. D. McLeod, manager of the Inland Lloyd's, stopped off at Chicago Tuesday on his way to Duluth to appraise the fire damage on the steamer D. M. Forbes.

Vessels surrendering their insurance policies on Nov. 1st are entitled to a rebate of 20 per cent on the full season's rate and on the 15th of November to a rebate of 10 per cent.

The following steam vessels' certificates of inspection expire during the month of November, 1894, in the local district of Chicago: Fireboat Chicago Nov. 7, steamer Coe Nov. 11.

Carr & Blair chartered the steamer John F. Eddy for barley at ¾ of a cent and consort John Shaw at 7/8 of a cent to Buffalo, the steamer Progress for oats to Buffalo at ¾ of a cent.

A. W. Goodrich, president of the Goodrich Transportation Co., returned to Chicago Saturday afternoon from an extended tour in Europe. Mr. Goodrich was accompanied by his wife and mother.

The steamer Wyoming with merchandise from Buffalo arrived here Monday morning. She had been ashore near Sturgeon Bay and about 400 tons of her cargo had to be lightered before she was released. She will go into dry dock for survey and repairs.

The steamer S. K. Martin, Capt. W. H. Evans, arrived here last Thursday night with lumber from Marinette. When she was leaving Menominee river Wednesday at noon her wheel struck a log and bent her outboard shaft. She went into drydock Friday for a new shaft.

Elphicke & Co. chartered the schooner Oak Leaf for 35,000 bushels of corn, South Chicago to Point Edwards at 1¼ cents; the steamer Iron Age and consort Iron City for oats to Buffalo at 7/8 of a cent; the steamer Escanaba for wheat to Milwaukee at ¾ of a cent free in and out.

The schooner F. W. Gifford, with hemlock lumber from Traverse City, has had her insurance policy canceled from Nov. 1 and will strip and go into winter quarters. The schooner Cheney Ames with lumber from Muskegon has had her insurance policy canceled and will strip and lay up.

John Taylor, single, aged 34 years, died Saturday afternoon. He was engineer on the tug Crawford of the C. T. Co. for many years and had been in the employ of the C. T. Co. for 10 years. He was well liked and much respected. His funeral took place Tuesday at Calvary cemetery and was attended by many of his fellow engineers and marine friends.

At Miller Brothers' shipyard the tug Robert Tarrant was in dock to have a leak stopped and receive a new wheel, the steamer Minnie B to have a leak stopped, the steam canal boat Welcome for some new bottom plank, the steamer Frank Woods for a new stern bearing, the tug Alpha for repairs to stern bearing and rudder, the tug D. P. Hall for a new wheel, the tug Dennis Brothers for examining bottom and slight repairs, the steamer S. K. Martin for a new outboard shaft, the tug Commodore for repairs to rudder, the barge Montgomery for searching up and calking.

A new transportation line was organized at Holland, Mich., on the 25th inst., under the name of the Grand Rapids and Chicago Steamboat Co., with a capital stock of $100,000. The officers are President W. R. Owen, of Chicago, vice president, Isaac Cappon, secretary C. J. Derro, treasurer, J. C. Pott, all three of Holland. The company will establish a daily line of steamers from Holland to Chicago and will pool earnings with the Holland & Chicago Transportation Co. next season. W. R. Owen will place the steamer Soo City on the route and the old company the steamer City of Holland.

## DETROIT, MICH.

*Special Correspondence to The Marine Record.*

The steamer Clarke was in dry dock for calking this week.

The schooner Belle Hanscomb was chartered this week at 3½ cents on wheat to Ogdensburg.

Bay City Lumber shipments are more than brisk and the past week shows larger reports than any week in two or three years past.

The small steamer Owen, which collided with and sunk the schooner Barkalow in the Thames River a few weeks ago, has been libeled for damages to the schooner to the amount of $300.

By hugging the Canadian shore, a schooner, also a Canadian, escaped seizure by a deputy marshal at this port on Monday. It appears that she owes a Port Huron tow bill and disputes the amount.

The Grummond Marine Reporting Bureau, on the river here, has got out a 12x10 photograph of one of their small boats going alongside of the "greyhound" Owego. Your correspondent is indebted to U. Grant Grummond, manager of the Grummond Line, for a framed copy of the above view.

The names of Capt. E. M. Peck and Wm. Livingstone, Jr., are mentioned as likely members to be elected to the presidency of the Lake Carriers' Association at the next annual meeting, to be held at this port. Either of the gentlemen would reflect honor upon the distinguished office.

The marine railway at the Oades shipyard is now completed and the first vessel will be hauled out in a few days. The yard is now capable of making bottom repairs on medium sized tonnage up to about 180 feet in length. This, however, is a great advantage to the port, as vessels almost too small for dry docking can go on the marine railway at little cost to their owners.

The firm of C. R. Jones & Co., vessel owners and brokers of Cleveland, has placed an order with the Detroit Dry Dock Co. for a wooden steamer of the following dimensions: 185 feet keel, 35 feet beam and 15 feet depth of hold, to be delivered on the opening of navigation next spring. The new boat will have a compound engine with cylinders 42 and 22 inches in diameter by 36 inches stroke. The steam will be furnished by one Scotch type boiler, 12 feet 3 inches by 11 feet, tested to 125 pounds and fitted with the Howden forced draft, for which appliance the Dry Dock Company are lake agents and manufacturers.

In reference to the speedy little passenger steamer Unique, Mr. C. McElroy, of St. Clair, Mich., managing owner, says that it is his intention, as also that of his co-owners to take out the Ward boilers this winter and put in some other kind or type of water tube boiler. With this change it is confidently expected that when the boat is brought out next spring she will not only come up to her designer's expectations, but surpass all that has hitherto been said of her. The engines, built by the Frontier Iron Works, are perfect in every particular and show a very high class of work, but there has been more or less difficulty with her boiler ever since her trial trip.

The Detroit corps of naval reserves are highly commended for the ability shown during their four days drill on the U. S. S. Michigan. A report forwarded to Washington by Lieutenant-Commander Berry, of the Michigan, states that the membership of the Detroit division is drawn from the best educated and most intelligent classes of the community. The men are of good physique and bearing; they readily comprehended the duties assigned to them on shipboard, and the zeal they displayed was highly commendable. It is the opinion of the board of inspection that a trained body of this class of men of such spirit as they display, must of necessity be a valuable adjunct to the United States Navy in time of war.

## BUFFALO, N. Y.

*Special Correspondence to The Marine Record.*

The insurance companies look for a cancellation of insurance November 1st and 15th, especially as the failure of grain to move continues.

Instead of coal shipments being brisk for the month of November, it now looks as if shippers had got their stock at Western points well advanced before the cold weather sets in. On the other hand, mine owners are pushing their output and anticipate extra large shipments by lake during the next few weeks, and I am somewhat inclined to think the latter view is about correct, although vessel brokers don't sight the coal here just now.

The schooner Grampian ran ashore on Strawberry Island Saturday night and she had to be lightered off after being aground there two or three days. A survey will no doubt show considerable bottom damage.

Canal freights have been fairly steady this week at 3 cents on wheat, 2¾ cents on corn, 2½ cents on barley and 2 cents on oats to New York. Lumber rates are $2 to New York and $1.50 to Albany.

Capt. M. H. Murch has been appointed master of the Union Transit Line steamer George J. Gould, vice Capt. Cottrell. The shore steward of the line and the master of the boat clashed on the authority of engaging a cook and the crew all left when Capt. Cottrell, after a talk with Manager French, resigned his command.

For a coal shipping record 36,000 tons is a fair two days' shipment this week and brisk shipping is likely to continue for some time, yet the 60 cent rate is quoted to Chicago, though the freight ought to be held up if there is to be anything in it for vessels, and it being thought that the Reading railroad is trying to bulldoze vessel owners, the Chicago rate is being held to 70 cents, as there is coal for shipment.

The excursion business out of this port meets with fair competition, if not a little too much of it, as it would appear from the steamer Nellie being knocked down by the marshal this week at Tonawanda for $2,000, bid in by Mr. F. J. Bissing, although her insurance valuation is $10,000. She ran behind in her bills during the summer on the Edgewater route. This experience does not deter others from making a dash to secure ducats during the summer excursion period, for parties are now figuring on a large Hudson River passenger boat to bring here for next season's work.

## CLEVELAND, O.

*Special Correspondence to The Marine Record.*

Capt. Ed. Hewitt, who has been all season mate of the Kaliyuga with Capt. John Lowe, arrived home from Chicago this week.

According to the returns of the bureau of navigation, the steel steamer Globe, recently built by the Globe Iron Works Co., of this port, is 2,996 tons gross and 2,279 tons net. Her official number is 86,307.

Chief Engineer Randall, of the steamer State of Ohio, of the Cleveland & Buffalo Line, is out again after a siege of several weeks at the hospital with typhoid fever. Chief Engineer Middleton, of the steamer City of the Straits, had charge of the Ohio's machinery during Mr. Randall's absence.

The schooner Lone Star fetched $125 at marshal's sale on Saturday. The claims against her amounted to $1,200, so it is a good deal like paying off creditors with the maintops'l to the tune of ten cents on the dollar. The vessel ought to have fetched about $500, but not many men are now investing in that class of tonnage.

A 30-year lease of the Chapin mine, together with all buildings and machinery and 2,000 shares of stock in the Hydraulic Power Co., was purchased on Monday by M. A. Hanna & Co., of this port, for $88,973.46. Only a few years ago the property was sold by the Van Dyke's, of Milwaukee, to Ferdinand Schlesinger for $2,000,000. The indebtedness represented by the trustee of the mine aggregated $648,782.88.

The Globe passed through the "Soo" Canal on her maiden trip with 2,700 tons of coal on a draft of 14 feet. This draft hardly brought the new steamer to her bearings and she looked to be in ballast trim, flying light. This handsome and staunch built steel steamer was constructed by her builders on their own account, and her first cargo taken on so limited a draft indicates what she could carry on a nineteen or twenty foot draft.

The recent casualty to the schooner Tasmania when entering this port calls to mind the loss of the Wahnapitae, and it is stated that a portion of her wreckage is still lying in the breakwater close to the west pier and about one hundred feet inside of the light-house. It is thought that the Tasmania struck this submerged wreckage, disabling her rudder and becoming unmanageable. A careful survey and soundings ought to be taken of the spot to learn if any portion of the wreck is still there.

The steamer C. H. Johnson has gone into winter quarters here; also the Bradley Liners J. S. Fay and schoon-

ers Sandusky and Thomas Quayle. The Emma C. Hutchinson is to winter at Chicago, the Pensaukee at Toledo, and Ahira Cobb, S. P. Ely and South West at Chicago. This list places six of the Bradley Line fleet out of commission. The J. C. Gilchrist fleet will continue the season as long as a new dollar can be exchanged for an old one.

The steel steamer I. W. Nicholas, recently completed by the Cleveland Ship Building Co., carried on her maiden trip 3,169 tons of coal and 200 tons of fuel on a mean draft of 14 feet 4½ inches. Such carrying ability is not frequently met with in modern-built lake tonnage and no such vessels are constructed elsewhere.

The Cleveland Towing Co., George Elsey, Jr., manager, is doing a large share of the towing at this port and the tug boats are moved around at a lively gait. The fleet of new steel tugs which the company had built at the yards of the Globe Iron Works Co., are giving the best of satisfaction in every respect.

Presidential timber for the Lake Carriers' Association is by no means exhausted at this port. Mr. H. M. Hanna, the former president of the Cleveland Vessel Owners' Association, could not be surpassed as presiding officer of the larger body. Another excellent and energetic officer would be Mr. H. A. Hawgood whose interest in the work of the association is second to none.

Among the subjects to be dealt with at the annual meeting of the Ohio State Board of Commerce, to be held in Columbus November 14, are the following: "Reciprocal interests of shippers and carriers," proposed by the Cincinnati Chamber of Commerce; "A ship canal of twenty-six feet from Lake Erie to the oceans of the world," by the Toledo Produce Exchange; "A ship canal between Lake Erie and the Ohio River," by the Cincinnati Board of Trade and Transportation.

There has been a good deal of complaint of late about the amount of whistling which is done by the tugs in the river at all hours of the day and night. As a matter of fact, the whistling is not being done by the tugs but by steamboats lying at the various docks. Some of these docks, especially in the main river, are in or near thickly settled dwelling districts, whose residents would be very thankful if the masters of boats, when they are ready for tugs, would step to the telephone, which is an adjunct of almost every dock in the city and make their wants known to the tug officers instead of creating a disturbance in the locality.

But little has been said recently of the coal handling appliance known as the Lindsay Terminal Equipment. The first one of these machines is now on the docks of the C. C. & S. R. R. at this port, and the work shows a record of thirteen cars handled in one hour at thirty tons per car, this shows 390 tons an hour. Although coal cars in sufficient numbers have never been on the track to keep the machine steadily at work, no less than 80 cars a day have been handled, and at twenty-five tons each car this gives a 2,000 ton record for the days' work. The equipment is specially designed to save the breakage of soft coal and will no doubt be adopted at other loading ports.

The Euclid Beach Park Co., incorporated with a capital stock of $300,000, is the latest passenger excursion deal to go through at this port, taking over the two ferry boats built here and recently plying between Duluth and Superior. The five incorporators, for there must be five to incorporate, are: Albert E. Thompson, of Cleveland, agent of the Crescent Transportation Co.; John Flynn, of Duluth; John R. Irwin, Hylas B. Gladwish and J. B. Burrows, of Painesville. The park is a short distance east of Adams Avenue, and if landings can be made the boats will stop at the foot of Erie Street and Willson Avenue going and returning. This is a lake front industry that will no doubt prosper.

The Cleveland Ship Building Co. have just shipped from their engine and boiler shop departments one of their blowing engines for blast furnace work to the Shenango Valley Steel Co., New Castle, Pa., a blowing engine to the Clinton Iron & Steel Co., Pittsburgh, Pa., and have prepared two more blowing engines to be shipped to the New Zealand Furnace Co., New Castle, Pa. There is now under way an order for the entire steam power plant for the Syracuse Street Railroad Co., consisting of three 400 h. p. engines for driving the electric generators and five 200 h. p. return tubular boilers, surface condensers, combined air and circulating pumps complete. They are also building two Scotch type boilers to the order of the Chicago Ship Building Co. for the two large tow barges building at the Chicago yards to the order of Pickands, Mather & Co., of this port.

## LAKE FREIGHTS.

The ore rate is held firm at 90 cents, 70 cents and 50 cents from the head of the lakes, Marquette and Escanaba respectively. Charters were made during the week from the latter port to Buffalo furnace at 65 cents, and to South Chicago at 44 cents, the vessel paying for trimming and the consignee discharging cargo at his own cost. 95 cents is looked for from Ashland within a few days.

Grain rates from Duluth are still quoted at 2¾ cents, 3 cents from Fort William, but the Chicago rates slumped from 1 cent during the week to ¾ cents on oats and wheat to Buffalo, about the lowest figure ever made, but is now back to ⅞ cents.

Coal rates have had rather a setback for, after holding out for several days on the 60 cent rate from Ohio to Milwaukee, 55 cents was accepted and even that rate is not now too firm. Portage and Gladstone, 40 cents; Duluth, 35 cents and the River ports 30 cents; Erie to Escanaba, 45 cents. Buffalo rates to Chicago dropped from 70 cents to 60 cents, but the former figure is again being held for; Milwaukee, 65 cents; Duluth or Gladstone, 30 cents; Toledo, 25 cents. Detroit charters: Wheat to Ogdensburg, 3½ cents; Toledo to Buffalo, 1½ cents; Oswego to Chicago, $1.05, and to Duluth, 85 cents. Lumber, Duluth to Ohio ports, $2.25.

## LOSS OF THE D. M. WILSON.

The steamer D. M. Wilson, from Cleveland to Milwaukee, sprung a leak and foundered in about six fathoms two miles northeast of Thunder Bay Island, on Saturday last. As she is in the fairway, lights will be exhibited from her spars when the weather permits, but it would be well for vessels to give her a wide berth. The valuation of the steamer is $28,000, and the insurance $21,000. She is 21 years old, rates A2½, and is owned by John A. Miller and others, of Buffalo. Her spars and smokestack are out of water and she will probably be floated. The cargo was insured with P. H. Fleming & Co., Chicago, but it is not likely that the freight was covered by insurance. The hull was insured in the following companies: London, $1,000; Western, $10,000; St. Paul, $3,300; Greenwich, $2,300; Detroit, $2,000; Commercial Union, $2,000; Insurance Company of North America, $2,000.

## LAKE SHIPBUILDING.

With the placing of a contract this week, by C. R. Jones & Co., of Cleveland, with the Detroit Dry Dock Co. for a wooden steamer, rumors of building a handsome passenger steamer for the Goodrich line, of Chicago, has developed. F. W. Wheeler & Co. also announce three-fourths stock being subscribed for a two thousand ton steamer, and Capt. James Davidson is to lay the keel for a large wooden boat. The only straight contract, however, which may be quoted positively, is the one secured by the Detroit Dry Dock Co.

## MARITIME LAW.

### BRISTOL CITY LIME CO. v. THE AGNES MANNING.

*U. S. District Court, New York.*

SALVAGE—DERELICT—AWARD. The Agnes Manning, carrying a full cargo of coal, was abandoned by her crew in March, 1893. The steamer Nestoria fell in with the wreck and made efforts to take it in tow, but, after breaking two hawsers, she abandoned the attempt and proceeded with her voyage. The Exeter City (s.), belonging to plaintiffs, subsequently found the derelict vessel, and, making fast to her, brought her safely into the port of New York, after six days' towing. The appraised value of the Agnes Manning was $27,000, and of her cargo $2,000, and the salvage services cost plaintiffs $850. In giving judgment in the action which was brought to recover salvage compensation, Mr. Justice Benedict said plaintiffs were entitled to a liberal award for their services. Plaintiffs had urged that the award should be much greater than that usually given in cases of derelict, as it was apparent that the awards now given were insufficient to induce vessels to incur the hazards attaching to the towing of such objects. The inadequate awards resulted in the floating wrecks being left abandoned to the detriment of commerce, so that the government had felt bound to send national vessels to destroy these obstuctions to navigation. His lordship thought plaintiffs' arguments worthy of consideration, and quoted a case decided twenty years ago in which the judge had said that the award, in a case similar to the present, should be such as to insure the incurring any risk to make the presence of the wreck safe. His lordship said that, in his opinion, 50 per cent. of the value of the salved property would be a liberal award, the sum of $850 dollars being first deducted and paid to the salvors to reimburse them the money they had expended.

### WUPPERMAV v. STEAMSHIP CARIB PRINCE.

*U. S. District Court, Eastern District of New York.*

1. WARRANTY OF SEAWORTHINESS—LATENT DEFECTS—EXCEPTION IN BILL OF LADING—ENGLISH LAW. The general rule of law is that the vessel must be seaworthy at the beginning of the voyage, and an unseaworthy condition, even if it arises from a defect which is latent and unknown to the owner, renders the ship liable for damage resulting from such defect.

2. By the English law, an exception in the bill of lading, exempting the owner from damage caused by a latent defect, limits, if it does not abrogate the warranty of seaworthiness which the law would otherwise imply, and exempts the ship, if due diligence is exercised by the ship owner.

3. Cargo was damaged on the ship Carib Prince by water escaping from the ballast tank through a hole caused by a defective rivet. The evidence showed that the rivet was defective from the time of the building of the ship, and hence the court held that she was unseaworthy in that respect at the beginning of the voyage. But the vessel was an English vessel, the bill of lading was signed at an English port, the bill of lading contained an exception against latent defects, which exception is given effect to by English law, and before sailing the owner had used all reasonable diligence to guard against such an accident. In view of these facts, held, that the ship was not liable.

Benedict, J.

## REPORTED BY THE LOOKOUT.

Landsman—"When two boats are in danger of collision, which one steers off and gets out of the way?" Yachtsman—"The one that's last painted."—*Ex.*

The Ashland shipments of iron ore for the past week were 44,152 tons, and for the season 1,449,663 tons. Of lumber 2,795,000 feet were shipped during the week.

Secretary Carlisle has given notice that the title of the division of revenue marine, treasury department, has been changed to "division of revenue cutter service."

The tug McCormick was sold by the United Siates marshal at Grand Haven on Monday for $175 to Thomas W. Kirby, of Grand Haven. Boswell & Pike, of St. Joseph, formerly owned the tug.

On a recent trip down the lakes the Pillsbury passed the Straits of Mackinaw three hours behind the H. J. Jewett. She reached Buffalo just twenty minutes ahead of the Jewett.

The incorporators of the Wentworth Navigation Co. are William Perkins Bull, Frank Byrne, John Berkinshaw, Martin Newman Merry and William Thomas Merry, all of Toronto. The capital of the company is stated as $18,000.

The magnificent new Atlantic passenger steamship St. Louis, constructed by the William Cramp & Sons' Ship and Engine Building Co., Philadelphia, Pa., for the International Navigation Co., will be launched on Nov. 12, and will be christened by Mrs. Cleveland.

Extract from a speech made at a meeting to promote total abstinence: "The glorious work will never be accomplished until the good ship 'Temperance' shall sail from one end of the land to the other and with a cry of 'Victory!' at each step she takes, shall plant her banner in every city, town and village in the country."

Capt. J. A. Manning, of Michigan City, inspector of the life-saving station, dropped dead of heart disease Friday, before the train which he had taken for home had started from Grand Rapids, Mich. He had been north on an inspection tour. He was about fifty years old and was widely as well as favorably known in marine circles.

Capt. James Reid, of the Reid Wrecking and Salvage Co., from Bay City, had a narrow escape last week when diving in 100 feet of water five miles off Muskegon, Mich. The air hose broke, and when brought to the surface blood was oozing from Reid's nostrils and ears. After about two hours' rest he pluckily resumed his task and succeeded in raising the machinery he went after.

The hull of the Canadian steamer Enterprise, which was wrecked on North Point Reef, Lake Huron a month ago, has been released by the Gilchrist & Fletcher Wrecking Co. The vessel is now at Alpena, but her machinery was taken out by the owners some time ago. The hull has been sold to Gilchrist, presumably on account of salvage services, and will be transformed into a tow barge.

# CORRESPONDENCE.

☞We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

## PORT HURON MARINE HOSPITAL.

PORT HURON, MICH., October 30, 1894.

*To the Editor of The Marine Record:*

I desire to inform the sailing fraternity through the columns of THE RECORD that the marine and general hospital at this port, under the United States hospital service, with Dr. W. J. Duff, U. S. surgeon, in attendance, is now ready to receive seamen requiring medical assistance. I shall be pleased to render any information and secure admittance for those who are entitled to the privileges at this port.

ED. J. KENDALL,
Marine Reporter.

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CHICAGO, ILL., October 30, 1894.

*To the Editor of The Marine Record:*

Would you please publish in THE MARINE RECORD the year the steamer Frontenac was launched and the number of spars she had at the time, or in fact for the first season. I ask this to settle a discussion. I have asked different men who are pretty well posted on steamboats but can not find out anything definite. Some say she had four spars when she was launched and has had two removed since, while others maintain she only had three when launched and has had one taken out. At all events she only has two at present.

FRANK O. MCQUEEN.

The steel steamer Frontenac, 1677 net tons, hailing from Ishpeming, Mich., built to the order of the Cleveland Iron Mining Co., was launched from the yards of the Cleveland Ship Building Co., March 23, 1889. She was fitted with four pole spars and on February 6, 1892, two of her spars were taken out.—ED.

## NOTICE TO VESSEL MASTERS.

BUFFALO, N Y., October 29, 1894.

*To the Editor of The Marine Record:*

Since Gen. Poe made his request that vessels should pass between the two dredges now working at the foot of Lake Huron, instead of between the red dredge and the light-ship, I have had many inquiries asking whether the water between the two dredges was as good as the water near the lightship in the course heretofore taken. In reply to a request for information, Gen. Poe writes me that the water between the two dredges is better than that between the red dredge and the light-ship, and that every foot of a channel 1,600 feet wide between the dredges has been dredged over to a depth of twenty-one feet, so that no vessels now on the lakes should meet with any difficulty in this portion of the channel.

Kindly publish this assurance from Gen. Poe for the benefit of vessel masters.

C. H. KEEP,
Secretary of the Lake Carriers' Association.

## HAY LAKE CHANNEL RANGE LIGHTS.

SAULT STE. MARIE, MICH., October 30, 1894.

*To the Editor of The Marine Record:*

We would respectfully announce that in order to facilitate the passage of vessels through the new Hay Lake Channel the balance of the season, we have, at our own expense, hung range lights on all the present targets which were erected by the U. S. engineers to show the courses in the new channel.

The lights are all white and can be seen at varying distances from one to four miles, depending on the condition of the atmosphere. They will be found in the order named, when bound up the river. Range lights on St. Joseph Island showing the course through the Rock Cut in Middle Neebish, range lights at the head of Neebish Island marking the course to Nine Mile Point, from thence up, range lights just above Nine Mile Point, just above Six Mile Point, and a pair nearly opposite each other a little below the cut through the islands.

These lights are furnished and maintained at our own expense, and our only remuneration hoped for is the increased patronage for our ship chandlery and hardware store, from the shipping interests when passing through the "Soo." Yours truly,

P. M. CHURCH & Co.

## BE CANDID.

Chief Engineer Melville, in his annual report, shows that American mechanical ingenuity has given the United States several ships which are far superior in fighting and manœuvring power, as well as in speed and endurance, to any afloat; that is, "they are unequaled in point of speed by ships of any navy in the world."

In upholding American shipbuilding interests, it is not wise to make assertions that are too sweeping and inclusive in their character. It is much nearer the mark to be candid in these matters. The belted cruiser Viscaya, just completed at Bilboa for the Spanish navy, attained in her trials under natural draught a speed of 18.6 knots, while the U. S. battleship Maine is credited with a trial trip speed of 17.55 knots, a record which does not make her the fastest ship of her class in the world, although such has been stated. Furthermore, at the Spanish shipyard where the Viscaya was built, ore can be brought in at one end and a fully equipped war vessel turned out at the other. The foreign-built barbette ships Barfleur and Centurion are 18.5 knot ships, the latter during her trials attaining a speed of 18.51 knots by her log. The whole of the English Royal Sovereign class are capable of steaming as fast as the Maine, and the Royal Oak steamed 18.5 by log on her trial.

## AMPLITUDES.

The following approximate amplitudes of the Sun's rising will be given each week in this column during the season of navigation: A second bearing of the Sun may be taken at sunset by reversing the bearings to read west instead of east, as, for example, E. S. E. for a sunrise bearing would read W. S. W. for a sunset, or E. 25° S. to W. 25° S.

LAKE ERIE AND S. END LAKE MICHIGAN LAT. 42° N.

| Sunrise. | Bearing (degrees.) | Bearing (points.) |
|---|---|---|
| Nov. 6 | E. 22° S. | E. by S. ⅞ S. |
| Nov. 9 | E. 23° S. | S. E. by E. ⅞ E. |

LAKE ONTARIO, S. END HURON AND CENTER LAKE MICHIGAN LAT. 44° N.

| Sunrise. | Bearing (degrees.) | Bearing (points.) |
|---|---|---|
| Nov. 6 | E. 23° S. | E. S. E. |
| Nov. 9 | E. 24° S. | S. E. by E. ⅞ E. |

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.

| Sunrise. | Bearing (degrees.) | Bearing (points.) |
|---|---|---|
| Nov. 6 | E. 23° S. | S. E. by E. ⅞ E. |
| Nov. 9 | E. 25° S. | S. E. by E. ¾ E. |

LAKE SUPERIOR LAT. 48° N.

| Sunrise. | Bearing (degrees.) | Bearing (points.) |
|---|---|---|
| Nov. 6 | E. 24° S. | S. E. by E. ⅞ E. |
| Nov. 9 | E. 26° S. | S. E. by E. ⅝ E. |

With a compass correct magnetic, the difference between the observed and true bearings will be the variation for the locality. If there is any deviation on the course the vessel is heading at the time of taking the bearing the result after the variation is applied will be the amount of deviation on that course.

## BUREAU OF STEAM ENGINEERING.

Engineer-in-Chief Melville, of the U. S. Navy, in his report to the Secretary of the Navy, states that the expenditure for labor during the past year has been $436,663.70, while the general expenses at home and on foreign stations amounted to $277,903.91. The machinery for the Monadnock is near completion, and that vessel will soon be ready for her dock trial.

In all its designs for machinery, whether for a tug, a battle-ship or a cruiser, the bureau has, in spite of much adverse criticism, insisted on a fair proportion of weight for power, especially in the boilers; as a consequence, the department has been spared the annoyance of failures on trial trips; and, without exception, all machinery built from its designs has done all, and more than all, that was required of it on the first trial, and without distress, accident, or injury of any kind. Such a record is unique, and, when the high powers and unprecedented speeds of some of the vessels are considered, it is one to be justly proud of. In the opinion of the bureau, much of this success is due to its uniform practice of allowing ample power for the speed required with a given displacement, as determined from the carefully observed performances of similar vessels, and having every design, before final adoption, carefully scrutinized by an engineer officer who has performed service at sea in charge of machidery, this being the only way in which much of the information absolutely essential to the successful designing engineer can be obtained. In the Minneapolis, the Columbia, the Olympia and the New York we have produced a quartet of cruisers which, in point of speed, is unequaled by a like number of ships of any navy in the world. Their trials were most exhaustive and the results such as to leave absolutely no doubt as to the real speed. Subsequent examination of the machinery failed to disclose any weakness or defect of any nature whatever in the machinery.

## NOTES.

THE Foster Engineering Co., of Newark, N. J., report that among recent orders received for their pressure regulators to be applied to dynamo engines are two 4-inch for the U S. battleship Texas; one 5-inch for the U. S. armoured cruiser Brooklyn; one 3-inch and one 4-inch for the U. S. armored cruiser Indiana.

AN order has just been placed by the W. & A. Fletcher Co., of Hoboken, N. J., for an equipment of Serve's ribbed steel tubes for the steamer Myles Standish, of the Nantasket Beach Steamboat Co., of Boston. These tubes in the Fall River Liner Priscilla have acted so handsomely that the W. & A. Fletcher Co. did not hesitate to recommend them for the above steamer, and the order will be promptly executed by the agent, Mr. Charles W. Whitney, Nos. 64 and 68 Broadway, New York.

IT is proposed by the navy department to purchase a large number of rapid-fire guns at an early date, in consideration of the American registry of merchant vessels for war purposes. The auxiliary navy now consists of about 100 vessels, all of which have been favorably reported on by inspection boards. These ships are to be armed with rapid-fire guns, which are to be stored in some convenient port near at hand. It is estimated that about 700 six-pounder rapid-fire guns will be needed for the equipment of the auxiliary ships.

THE Supreme Court of Minnesota has affirmed the judgment of the superior court in the case entitled John Cadden vs. American Steel Barge Co. This was a personal damage case. Cadden was injured by a falling scaffold which was built about a vessel upon which he was at work. He sued the company, alleging that the scaffold was improperly built and insufficient. He obtained a judgment of $3,250 in the superior court and this has been affirmed by the Supreme Court.

THE proportion of the ships using electric lights for navigating the Suez canal during the last four years has been as follows: 1890, 83 per cent.; 1891, 88 per cent.; 1892, 90 per cent.; 1893, 92 per cent. The average time occupied in passing through the canal was, in 1893: With the electric light, 19 hours, 52 minutes; without the light, 31 hours, 24 minutes. The time occupied in transit slowly but steadily decreases. Out of the 3,341 ships which passed through the canal in 1893, 2,300 had a draft of under 23 feet 4 inches; 985 drew between 23 feet, 4 inches and 26 feet; and 56 had the maximum draft of 26 feet.

AMONG the illustrated features of the November *Harper's* are "The Sea Robbers of New York," a bit of popular Colonial history, by Thomas A. Janvier; "At the Capital of the Young Republic," a description of Washington in its early days, by Henry Loomis Nelson; "The Cossack as Cowboy, Soldier and Citizen," by Poultney Bigelow; "A Painter's Impressions of Rajpoontana," by Edwin Lord Weeks; "The Religion of the Sioux," by Lieut. William H. Wassell, U. S. A.; "On the Trail of the Wild Turkey," by Charles D. Lanier; the closing chapters of Charles Dudley Warner's novel of New York society, "The Golden House," and "The Lineman's Wedding," the second of Julian Ralph's stories of tenement life in New York.

THE Pittsburg correspondent of the *Black Diamond* does not take kindly to aspersions cast upon citizens of the "Smoky City," relative to their ability to build a canal. He says: "The movement now on foot to build a canal from the Ohio River to Lake Erie is backed by the Chamber of Commerce of this city, its members being composed of the wealthiest and most influential of Pittsburg citizens. They are all thoroughly imbued with the idea that it can be built, and that they propose furnishing the capital to do so. As to 'All the fools are not dead yet,' as suggested by your Buffalo correspondent in last week's letter, we may say that Buffalo will yet find the 'fools' of Pittsburg the equal in every respect of the wisest of her citizens, both in the amount of capital which she can produce on demand and the will displayed in bringing about results desired in its use. They are, it is true, somewhat slow and old fashioned in their movements and ideas, but they generally 'get there' when they have an object in view."

### LLOYD'S REGISTER SHIPBUILDING RETURNS.

From the returns compiled by Lloyd's Register of Shipping, it appears that, excluding warships, there were 327 vessels of 653,331 tons gross under construction in the United Kingdom at the close of the quarter ended 30th September, 1894. The particulars of the vessels in question are as follows:

| STEAM. | No. | Tons. |
|---|---|---|
| Steel | 255 | 611,619 |
| Iron | 24 | 5,331 |
| Wood—Composite | 4 | 377 |
| Total | 283 | 617,327 |
| SAIL. | | |
| Steel | 21 | 33,190 |
| Iron | 1 | 225 |
| Wood—Composite | 22 | 2,589 |
| Total | 44 | 36,004 |

Total steam and sail.—Number, 327; gross tonnage, 653,331.

The present returns are less than those of the previous quarter by about 65,000 tons. The reduction occurs both in steam and sailing tonnage, but is much greater proportionately in the latter. In fact, the returns of sailing tonnage under construction are now less than at any time since 1879. It is noticeable, moreover, that the total tonnage which has been commenced during the quarter is unusually low. Last quarter these figures were exceeded by 83 per cent. In particular, attention may be drawn to the fact that the sailing tonnage commenced amounted only to 2,320 tons, as compared with 22,960 tons commenced last quarter, and 91,250 tons commenced in the last quarter of 1891.

Of the vessels under construction in the United Kingdom at the end of September, 282 of 563,928 tons (or nearly 87 per cent. of the tonnage) were under the supervision of the surveyors of Lloyd's Register with a view to classification by that society.

In addition to the foregoing, 17 vessels of 53,835 tons are reported as building abroad with a view to classification in Lloyd's Register Book. The totals of vessels building under the supervision of Lloyd's surveyors on 30th September, 1894, were 300, of 617,913 gross tons.

The returns of the vessels "preparing" (i. e. ordered but not commenced) there, was on December 31, 1893, 103, of 176,621 gross tons; on March 31st, 1894, 122, of 271,308 tons; June 30, 1894, 80, of 165,933 tons; and to date, 60, of 156,485 tons. In the total of mercantile tonnage now under construction in the United Kingdom, no less than 68 are building for foreign account and on speculation.

In the size of vessels under construction there are twenty-five of from 500 to 1,000 tons; fifty-four from 1,000 to 2,000 tons; sixty from 2,000 to 3,000 tons; fifty-six from 3,000 to 4,000 tons; twenty-six from 4,000 to 5,000 tons; twelve from 5,000 to 6,000 tons; two from 6,000 to 7,000 tons; one from 8,000 to 9,000 tons. Total, including sail and steam, 283. Vessels of less than 100 tons are not included in Lloyd's Register shipbuilding returns unless they are intended to be classed in the society's register book.

The following table gives the total figures for vessels now under construction at the principal British shipbuilding centers, warships excluded:

| DISTRICT. | DESCRIPTION. | 30th Sept., 1894. No. | Gross Tons. |
|---|---|---|---|
| Barrow, Maryport & Workington | Steam | 5 | 9,388 |
| | Sail | 4 | 8,320 |
| | Total | 9 | 17,708 |
| Belfast | Steam | 13 | 58,680 |
| Clyde | Steam | 83 | 183,139 |
| | Sail | 14 | 21,770 |
| | Total | 97 | 204,909 |
| Hartlepool & Whitby | Steam | 18 | 47,630 |
| Mersey | Steam | 2 | 510 |
| | Sail | 1 | 130 |
| | Total | 3 | 640 |
| Middlesbro' and Stockton | Steam | 25 | 65,170 |
| Tyne | Steam | 51 | 121,956 |
| Wear | Steam | 43 | 112,025 |

The foregoing is for the principal districts and leaves a balance of thirty-three vessels for the merchant service to be divided up among the several minor ports at which shipbuilding to a greater or less extent is carried on. It should also be borne in mind that the above are merchant vessels (passenger and cargo) exclusive of warships or small coastal tonnage.

### WARSHIPS UNDER CONSTRUCTION IN THE UNITED KINGDOM.

In order to afford a comprehensive view of the shipbuilding in progress throughout the United Kingdom, the following statement of the war vessels which are at present under construction has been compiled. For this statement, it has been assumed that a vessel may be regarded as "under construction" from the commencement of the laying of her keel to the time when she is ready for her steam trials. Of course, when this latter stage is reached, the guns have usually still to be placed on board, and the vessel to be fitted out before she is ready to be commissioned; but she is, nevertheless, structurally complete.

| NATIONALITY. | DESCRIPTION. | AT ROYAL DOCKYARDS. YARD. | NO. | DISPLACEMENT. | AT PRIVATE YARDS. YARD. | NO. | DISPLACEMENT. | TOTAL. NO. | DISPLACEMENT. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | TONS. | | | TONS. | | TONS. |
| BRITISH | *1st Class Battle Ships | Chatham | 2 | 29,800 | Birkenhead | 1 | 14,900 | *9 | 131,550 |
| | | Pembroke | 2 | 27,250 | Clydebank | 1 | 14,900 | | |
| | | Portsmouth | 3 | 44,700 | | | | | |
| | 1st Class Protected Cruisers | | | | Barrow | 1 | 14,200 | 2 | 28,400 |
| | | | | | Clydebank | 1 | 14,200 | | |
| | †2nd Class Protected Cruisers | Chatham | 1 | 5,600 | Barrow | 2 | 11,200 | †8 | 44,800 |
| | | Devonport | 1 | 5,600 | Glasgow | 1 | 5,600 | | |
| | | Portsmouth | 1 | 5,600 | Govan | 2 | 11,200 | | |
| | 1st Class Torpedo Gunboats | Devonport | 1 | 1,070 | | | | 1 | 1,070 |
| | Sloops | Devonport | 2 | 2,100 | | | | 4 | 4,020 |
| | | Sheerness | 2 | 1,920 | | | | | |
| | Torpedo Boat Destroyers | | | | Barrow (3), Birkenhead (3), Blackwall (1), Chiswick (3), Clydebank (3), Cowes (3), Elsick (2), Govan (3), Hebburn (3), Hull (2), Jarrow (3), Paisley (2), Poplar (3), Sunderland (2) | 36 | 10,000 | 36 | 10,000 |
| | 1st Class Torpedo Boats | | | | Cowes | 1 | 160 | 3 | 370 |
| | | | | | Poplar | 2 | 210 | | |
| | Total | | 15 | 123,640 | | 48 | 96,570 | 63 | 220,210 |
| FOREIGN OR NOT STATED | 1st Class Battle Ships | | | | Blackwall | 1 | 11,000 | 2 | 22,000 |
| | | | | | Elswick | 1 | 11,000 | | |
| | Cruiser | | | | Elswick | 1 | 4,400 | 1 | 4,000 |
| | Torpedo Boat Destroyer | | | | Poplar | 1 | 255 | 1 | 255 |
| | Total | | | | | 4 | 26,255 | 4 | 26,255 |
| BRITISH AND FOREIGN | Total | | 15 | 123,640 | | 52 | 122,825 | 67 | 246,465 |

* The naval estimates include one additional first-class battle-ship, of 14,900 tons, which is about to be commenced at Chatham.

† The naval estimates include one other second-class protected cruiser of 5,600 tons, which is about to be commenced at Glasgow.

### OPENING UP A LAKE PORT.

The Lake Michigan & Superior line has contracted to carry 25,000 barrels of flour before the end of the season from Duluth to Benton Harbor. The flour from there will be sent south over the Big Four railroad. A large warehouse has been constructed by the Big Four, which has purchased all the land on the north side of the St. Joseph River, between Benton Harbor and the Hotel St. Joseph. It is stated that a number of slips will be constructed upon this tract before the opening of navigation next spring. No attempt will be made to maintain a winter line of steamers between Chicago and St. Joseph, but the business of the winter line between Milwaukee and St. Joseph will be pushed.

### A DOMINION TRANSPORTATION COMPANY.

Notice has been given at Ottawa, Ont., of an application for letters patent to incorporate the Wentworth Navigation Co., a syndicate of capitalists desiring and intending to run steamboats and other means of transportation between Quebec and Chicago, Duluth and Owen Sound and all intermediate ports, and generally for the purpose of navigating all the inland waters of the Dominion of Canada by carrying passengers and freight and doing a general navigation business. The company's headquarters will be at Toronto, Ont.

### LAKE SHIPMENTS OF COAL.

At a meeting of the Engineers' Society of Western Pennsylvania, held at Allegheny, Mr. G. E. Tener read a paper on "Lake Shipments of Coal," in which he stated that in 1887 the shipments amounted to 1,854,122 tons, the Pittsburgh and Ohio districts furnishing respectively 51 and 49 per cent. of this. The shipments increased yearly and in 1892 there were 3,372,462 tons, Pittsburg sending 52¼ per cent. and Ohio 47¾ per cent. Last year owing to the depressed condition of trade there was a very slight decrease In shipments as compared with the previous year. Mr. Tener described the various methods of handling coal at lake ports and noticed the fact that until recently but little improvement had been made during the last quarter of a century.

Formerly cars containing coal were dumped into pockets with chutes that led to the vessels, but owing to the great waste by breakage incident to this method it was abandoned. The revolving crane and bucket were then introduced, and though not altogether satisfactory on account of considerable waste by breakage, it is the ordinary method now employed. Mr. Tener said that his ideal plan was to have the coal loaded in boxes at the mines, conveyed thence by cars to ports and placed in boats. The best plan yet in use was stated to be a machine which runs the car over the vessel on an incline of 60 degrees, and thus by bringing it closer to the vessel than any other method, the breakage is not so great.

### PITTSBURGH TO BUILD WHALEBACKS.

It is again stated that Capt. McDougall has plans well advanced for the establishment of a shipyard for construction of whalebacks in Pittsburgh. The vessels are to enter the trade between New Orleans and Pittsburgh and ultimately, it is expected, between Lake Michigan and the Gulf of Mexico via. the Hennepin canal. It will be remembered that this departure was talked of some time ago, as it was thought the whaleback type would show greater economy in carriage and construction than the present mode and type of vessel in use in river transportation.

CRAWLEY & JOHNSTON, Cincinnati, O., have just closed a contract with the owners of the New Orleans steamer Valley Queen, for a complete new steam steering outfit known as the "Cincinnati" a special make of these well-known manufacturers.

# THE MARINE RECORD

ESTABLISHED 1878.

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OUR thanks are due the Hon. Wm. Smith, deputy minister of marine and fisheries, Ottawa, Canada, for a copy of the twenty-sixth annual report of his department. The work is as complete in detail and furnishes about the same series of interesting statistics and reports as former issues of the annual.

WITH a commendable interest in the affairs of lake navigation, Mr. Charles H. Keep, secretary of the Lake Carriers' Association, through correspondence with Gen. O. M. Poe, corps of engineers, U. S. Army, has ascertained that the best passage for vessels to take at the foot of Lake Huron is between the two dredges now at work there, and not between the red dredge and the lightship. Every foot between the two dredges has a clear depth of twenty-one feet over an area sixteen hundred feet wide, as noted in another column of this issue.

SHIPMASTERS would do well to notice for their future guidance the case of Capt. Peterson, of the schooner Belle Brown, recently decided by the District Court at Milwaukee, Wis. It appears that when off Spencer's Pier, on the west shore of Lake Huron and about thirty miles southeast of Cheboygan, Mich., an alleged assault was made on one or more members of the crew by the master. The point which the master's lawyers, Messrs. Markham & Nickerson, proctors in admiralty, raised, was that the alleged offense, if committed, took place on the American side of the territorial line between the United States and Canada, therefore within the State of Michigan and within the eastern district of that state, and that the authorities in the Eastern District of Wisconsin had no jurisdiction either to arrest the master and remand him to the Eastern District of Michigan for trial or to try him at Milwaukee. The ruling was in favor of the foregoing plea made by Mr. Nickerson, the masters counsel at Milwaukee and the action was accordingly discharged.

FROM the statistics contained in the annual report of the U. S. Steamboat Inspection service for the current year, we find that out of a total of 1,582 applicants for masters' and pilots' licenses, 38 were rejected for color blindness, or more than 2 per cent. The English board of trade, a department examining and issuing masters' and officers' licenses, state in their last annual report that out of a total of 4,577 officers, only 35, or less than 1 per cent were rejected owing to inability to distinguish colors. From the foregoing it is evident that either the tests are much more rigid in the United States or else American seamen are deteriorating in this respect. However, experts in various countries have accumulated proofs and statistics showing that 35 out of every 1,000 adult males are afflicted to a greater or less degree with color blindness, and this factor would show that American seamen are less frequently color blind than people who are engaged in shore occupations, as the number detected by the local inspectors of steam vessels falls much below the average shown by experts in the United States and foreign countries.

## CYLINDRICAL AND WATER TUBE BOILERS.

One of the strongest supporters of the well known cylindrical form of boiler is Mr. James Howden, whose forced draft system has made his name universally known. Much has been written and said in favor of the tubulous boilers, and perhaps the bow has been somewhat stretched in advocating the economy of the new type over the old, although it is generally admitted that at no distant date the water tube boiler, or a type thereof, will supersede the present cylindrical form of steam generators.

The Glasgow inventor of forced draft now steps into the arena to champion the cause of the "Scotch" type of boiler, fitted with his forced draft, against the acknowledged merits of the Belleville water tube type, and if the challenge is accepted, as no doubt it will be, the cylindrical form of boiler will either take a new lease of general adaptability, or will be relegated to special tonnage only, and the Belleville type be awarded the honors of "the survival of the fittest," carrying with it a certain amount of prestige in favor of all other standard makes of the water tube boiler.

The consensus of opinion among inventors and marine engineers is that the water tube boiler has come to stay, but whether under the present form or by some different arrangement of the tubes, seems to require just such tests as Mr. Howden is ready, willing and eager to make with the best known form of tubulous boiler adopted within the past few years by the naval and mercantile tonnage of the world. The points which Mr. Howden wishes to be determined are as follows:

First, weight; 2d, space occupied; 3d, evaporative power; 4th, economy; and 5th, as to heat wasted. He asks the makers of the Belleville type to supply two of their boilers, each of which is stated to give 250 I. H. P. at sea with ease, and 400 I. H. P. on trial, with a grate area of 29 square feet and a heating surface of 1,190 square feet; against these will be placed a single ended cylindrical boiler with two furnaces, and fitted with his system of forced draft. With this boiler he undertakes that the horse-power will be equal to 1.67 square feet of heating surface. To give that indicated horse power the cylindrical boiler will only require 1,336 square feet for heating surface, and 37.78 square feet of grate area, as against 2,380 and 58 square feet respectively allowed to the water tube boiler. The less grate area and heating surface is the point on which Mr. Howden will prove the economy, though perhaps even this issue would not be generally conclusive to the advocates of the Belleville or similar types. However this may be, to make the tests fairly exhaustive, the trial is to last for thirty hours and to be conducted by neutral experts, and the stakes are to be the expenses and cost of the boilers.

It can not but be admitted that Mr. James Howden has at least the courage of his convictions, and being individually convinced of the efficiency of his forced draft system in cylindrical boilers, takes the initiative by issuing the challenge for a trial on the result of which so much will depend in the future. This test, ably conducted, will be of inestimable value to the world, including naval, mercantile and commercial interests as represented by stationary plants. The U. S. Bureau of Engineering made some valuable competitive tests regarding the efficiency of the Ward boiler, and their findings were highly congratulatory to the builders of that type, inasmuch as they were adopted for U. S. naval use; but much more may by expected from the results of the contest between the cylindrical and Belleville type of water tube boilers.

## CLYDE SHIPBUILDING.

As Cleveland, O., is very frequently alluded to as the Clyde of the lakes in shipbuilding interests, it behooves us to again point out the incongruity of the comparison, and this we do to save the untraveled, self important and stump orator from perpetrating unwarranted if not asinine statements relative to this subject.

From the table contained in another part of this issue, it will be seen that the Clyde shipyards had on hand October 1st, 1894, eighty-three steamers, each having a mean tonnage of 2,086, or an aggregate of 183,139 tons; fourteen sailing ships with a mean tonnage of 1,555, or an aggregate of 21,770 tons, and twelve warships with a tonnage of from 300 up to 14,900 tons, or a mean for the twelve of 4,442 tons each. This total for the Clyde, according to official statistics—viz.: Lloyd's Register Shipbuilding Returns for the quarter ended September 30, 1894—shows an aggregate tonnage of 258,209, distributed among 109 vessels, naval and mercantile, and if we take a mean tonnage for all of this number, it would show that each vessel was of nearly 2,369 tons; yet, they actually run from a torpedo boat destroyer of 300 tons along to the ordinary size of modern merchant ships and up to a first-class battleship of 14,900 tons displacement.

We have now on the stocks at Cleveland one steamer of 4,244 gross register tons, and at Philadelphia, Pa., on August 31st, four steamers aggregating 28,000 tons; at San Francisco on June 30th two steamers with tonnage not stated. The foregoing, of course, are merchant steamers, yet, to carry the simile a trifle further, we may take into account every vessel of 100 tons and upwards building at this time in the United States and it would by no means equal the output or orders under construction at the Clyde shipyards. How ridiculous, then, to compare one port on the lakes with the total output of twenty miles of shipyards as represented on the River Clyde between Greenock and Glasgow. It might be as well if Cleveland dropped the Clyde representation and used less grandiloquent terms, being satisfied to quote individual ports instead of a vast collection of shipyards if we have to cross the "herring pond" to draw comparisons. In this connection we cannot do better than quote the closing paragraph of an editorial on the subject of shipbuilding published in our issue of March 1st, 1894, wherein it was stated that it is commendable from every standpoint to assert that American shipbuilding centers on the lakes, and that lake built tonnage is the backbone of the country's coastal mercantile marine. Further may we point with pride to the volume of commerce using the St. Mary's Falls Canal and the enormous number of entrances and clearances at the largest lake ports, notably Chicago. Yet, while heralding the phenomenal progress of commerce and growth of the shipbuilding interests, let us keep strictly within the bounds of reason, common sense and truth, or as near thereto as circumstances in a data gathering sense will permit. This is the more distinctly borne in upon us at this time as we have been asked on two separate occasions during the week for Cleveland shipbuilding statistics designed to minimize if not paralyze the work done at other ports, and especially to hold up the Clyde contention and argument.

## THE NEW SAILING AND STEERING RULES.

There appears to be a doubt at Washington whether the new steering and sailing rules to take effect March 1, 1895, are to be enforced on the lakes or not. The commissioner of navigation, over whose signature the circular apprizing shipmasters and pilots of the changes has been sent out, literally throws up his hands by saying he knows not whether the lakes come within the terms of the president's proclamation or otherwise, and the Hon. J. G. Carlisle, secretary of the treasury, seems to be in no particular haste to solve the problem.

As we have stated before, the new rules are to be observed by all vessels upon navigable waters connected with the high seas and navigable by sea going vessels, and collectors of customs are authorized to give lake shipmasters copies of the new rules, calling their attention to the fact that the rules will not go into effect prior to March 1, 1895. So much the circular states, and at that point we are nonplussed, as it seems impossible to get a definite opinion from the treasury department on this vital question. If these rules are to go into effect on the lakes, the sooner it is known the better for all concerned, and, in fact, there may be some suspensions or modifications to make to render the rules suitable for lake navigation.

It should be distinctly understood that rules for coast and ocean are not appropriate for the lakes, where so much towing is being done, and on this point alone is where trouble will ensue with the giving way ship in a fog or thick weather. Knowing when to stand on or give way, and permitting an officer to handle his boat accordingly, works perfectly when there are two or more boats running singly, but if we allow the giving way ship to have a string of tow barges after her, and this, too, in limited waterways, the difficulty at once occurs, "how to give way." Stopping, and if necessary reversing, is out of the question for lake practice in the case of a steamer towing, and there are other points contained in the new rules which, if they are to go into effect on the lakes, will require some drilling up to comprehend their full force.

### CASUALTIES IN FOG.

Fog is the *bete noir* of lake shipmasters and pilots. Let a fog prevail on any lake, if only for a few hours' duration, and something, generally steam, as that tonnage preponderates and keeps moving, is almost certain to smell the bottom at least, and in some cases it transpires that a serious stranding casualty is made of it.

It matters not that the vessel is indemnified by the underwriters where the stranding amounts to an average on her policy, for the owners pay all such losses sooner or later in increased premiums and terms of their policies, to say nothing of the detention, inconveniences, etc., brought about through the casualty.

It can not be said that careless navigation is entirely responsible for the casualties in fog, notwithstanding the fact that a vessel can not get ashore unless she is voluntarily placed there. On the other hand, where a steamer is in with the land, or in shoal water, carefully groping her way towards the entrance to a port or steering a course which has regularly been found to lead clear of all dangers, it is not to be wondered at that she sometimes fetches up.

The assumption that when a fog sets in, strandings and collisions should occur in the due course of navigation, is an exploded notion, for it is at just such times that the ordinary precautions and skill observed by proficient seamen is called into use for the safe conduct of the lives and property intrusted in their hands. The facts which may be evolved from the foregoing are, first, that the owner can never profit by a case of stranding and that usually it means a heavy loss to him. In the second place a vessel will never go ashore of her own volition, consequently she must be voluntarily steered and propelled there. Finally, skill is required in emergencies, not when everything is plain sailing, or only at such times in a mediocre degree.

As a preventative against unseen dangers, attention to the three L's, lead, log and lookout is as necessary to-day as ever, and these features should of necessity be more strictly observed when a vessel is land-locked and the relation between the compass and true courses are not so closely defined as when traversing the trackless waste of unlimited sea room.

We were in hopes some time ago that shipmasters and pilots on the lakes would be furnished with reliable and valuable information through the holding of official inquiries in all cases of serious strandings, as there is no means of which we can profit more than by taking advantage of the mistakes, errors of judgment, etc., of others; besides such inquiries, were expected to develop untoward circumstances in certain localities, as for instance, an undue amount of local attraction of the compass on the north shore of Lake Superior and at other points in lake navigation. These inquiries, or the expectations arising therefrom, are barren of results ; that is, if they are ever properly conducted, or conducted at all, a point about which we are in some doubt, *per se* there is nothing to be learned from the circumstances attending the misfortunes of others, no adequate warnings are thrown out, and a repetition of casualties becomes customary, if not rulable, until a Chicago special sent out some time ago "guessed that as a fog. prevailed at the time there was certain to be a good sized collision case or two before the weather cleared up," a lubberly assertion, which men engaged in sailing ought to do their best to combat by bringing their vessels safely to port, thus nullifying the statement which if allowed to gain credence through frequent cases of collisions and strandings in thick weather would eventually become prophetic.

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THE parting of wheel chains or steel wire rope rove off for steering gear has been a fruitful source of trouble on the lakes for several seasons. We are aware that the rule of daily inspection of this important gear is very frequently neglected, and, in fact, where the lead of the chains are under the main deck, daily inspection, oiling leads, etc., is an impossibility when carrying bulk cargo. That a system of regular inspection of wheel chains pays for the time consumed is palpable by glancing at the result of recent litigation where a Wilson Transit Liner was concerned. In this case it was shown that the steering gear was duly inspected, and the vessel was consequently exonerated from all blame in the case of a collision which occurred in Detroit River. An excellent custom is for a junior officer to inspect the steam steering gear each day at 4 p. m., or before darkness sets in, making a report of the same by a notification in an abstract or regular log book.

### ILLINOIS AND MICHIGAN CANAL.

The Illinois and Michigan Canal will be officially closed for navigation from Bridgeport to La Salle on Thursday, November 15, 1894, at midnight. If the weather permits, boats will be allowed to run after that date between Joliet and Bridgeport at owner's risk of being frozen in.

### HANDLING BULK CARGO.

On Thursday last the steamer Harvey H. Brown was taken alongside of a Duluth grain elevator and eighty minutes after the grain started running into her hold a cargo of 115,000 bushels of wheat was loaded. It is believed that this beats the world in handling a bulk cargo.

A later record is that of the steel steamer Zuma, of the Wilson Transit Line, Capt. Daniel Bine. This vessel was loaded at Two Harbors on Saturday with 3028 gross tons of iron ore in forty-five minutes, which is assumed to be the quickest handling of ore ever known.

### ALLEGED ASSAULT.

With reference to the case of alleged assault made by Capt. Peterson, of the schooner Belle Brown, it appears the seamen claimed that while the schooner was at Spencers, five miles south of Hammond Bay Life Saving Station, Michigan, the master assaulted them with a revolver. On arrival at the port of Milwaukee, the seamen went before Commissioner Francis Bloodgood and caused the captain to be arrested under Section 5346-7 of the Revised Statutes of the United States, and the commissioner bound the captain over to appear before the grand jury. The grand jury found an indictment and the United States District Attorney entered a complaint. Harold W. Nickerson, Esq., of the law firm of Markham & Nickerson, Milwaukee, on behalf of the captain, demurred to the complaint on the ground that as the alleged assault was committed at a port in Michigan, the District Court of the United States at Milwaukee had no jurisdiction in the premises. The court sustained the demurrer and discharged the captain and his bondsmen. Of course, Mr. Nickerson's point was well taken, and as eminent authority says, "A glance at the law referred to would convince any one but a court commissioner that the District Court had no jurisdiction in the premises." In fact, the federal courts have so held uniformly.

### NOTICE TO MARINERS.

BUFFALO, N. Y., October 30, 1894.

The buoys west of Erie, and those at the islands, will be taken up between the 12th and 30th of November, and winter buoys substituted. The buoys of Detroit River and the light vessels at Bar Point, Lime Kiln Crossing and Ballard Reef will remain as late as the season will permit, probably December 5.

CHAS. V. GRIDLEY, Com. U. S. N.
Inspector 10th L. H. District.

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UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—WISCONSIN.

TWIN RIVER POINT LIGHT STATION.—Notice is hereby given that, on or about November 20, 1894, the third-order light at Twin River Point light station, W. side of Lake Michigan, will be established, without change of characteristic, at a height of 111 feet above the mean level of the lake, in the tower recently erected immediately in rear of and to the westward of the keepers' dwelling.

During the three or four nights preceding the exhibition of the light from the new structure the light will be extinguished and there will be exhibited, as a substitute, from the watchroom gallery of the old tower, a fixed white lens lantern light, forced to its greatest brilliancy.

The new tower is an octagonal pyramidal iron skeleton, inclosing a stair cylinder, and surmounted by a service room, watchroom and lantern. The structure is white, excepting the lantern, which is black.

The lantern, watchroom, and gallery of the old tower will be taken down immediately, and the remaining portion will be reduced to a lower level as soon as practicable, after the establishment of the light in the new structure.

By order of the light-house board.

JAMES A. GREER,
Rear Admiral U. S. Navy, Chairman.

Office of the light-house board, Washington, D. C., October 30, 1894.

### STEAMBOAT INSPECTION SERVICE.

From an abstract of the annual report of the supervising inspector general of the steamboat inspection service for the fiscal year ended June 30, 1894, and which has just been issued, it is learned that in the ten districts which the seacoast and lakes are divided into, a total of 7,762 steamers having a net tonnage of 1,595,785, were inspected up to the close of the fiscal year. To man these craft 38,680 officers were granted licenses.

From the accompanying table it is shown that practically the two lake districts, eighth and ninth, has inspected nearly as many vessels as the Pacific Coast, Gulf Coast and Western rivers combined. Furthermore, the tonnage for the seven districts, omitting the three Atlantic coast divisions, aggregated 370,545 tons, while the two lake districts, including 39,000 odd tons inspected at Duluth in the fifth district, makes a total of 658,101 tons, thus nearly doubling up on the three foregoing territorial divisions.

And now if we glance at the much lauded Atlantic coast shipping as shown by the local inspection tables, we find that 3,471 steamers were inspected, against 2,112 on the lakes, but here, in the point of numbers, the advantage seems to end, for although the Atlantic coast districts inspected 1,359 more vessels than the lake districts, the net tonnage of the Atlantic coast falls behind that of the lakes 90,963 tons and this is further exemplified by noting that the mean tonnage of the vessels inspected on the Atlantic coast amounted to only 163 tons, while the lakes, with a total of 2,112 steamers inspected, shows a mean tonnage of 311 or nearly double that of the coast. All of which goes to show the heavier class of tonnage on the lakes and, consequently, the almost incomparable economy observed in lake commerce and transportation. The table mentioned in the foregoing is as follows:

| Divisions. | Steamers. | Net tons. | Officers Licen'd |
|---|---|---|---|
| Pacific Coast | 618 | 147,547 | 3,429 |
| Atlantic Coast | 3,471 | 567,139 | 16,146 |
| Western Rivers | 980 | 150,848 | 6,474 |
| Northern Lakes | 2,112 | 658,101 | 9,588 |
| Gulf Coast | 581 | 72,150 | 3,043 |
| Total | 7,762 | 1,595,785 | 38,680 |

It is estimated that between six and seven hundred million passengers were carried during the fiscal year.

### SUBMARINE WORK ON LAKE ERIE.

The American Salvage Co. has entered upon an attempt to raise a large steamer which foundered off Dunkirk, Lake Erie, in 1881. Chicago underwriters, who had insurance on the boat, are not interested in the efforts of the salvage company to find the wreck and raise it with air bags. C, A. McDonald is quoted as saying : "I do not think that the Dunkirk tugs engaged to drag Lake Erie will ever find the Brunswick. The air bag people have not bought the wreck from us, but if they succeed in raising it they can collect salvage. The salvage would be about 99 per cent. In other words, we do not think the Brunswick is worth anything, and will virtually give her to the air bag people."

### CANADIAN SAULT CANAL.

A Sault telegram states that notwithstanding a report to the contrary, the Canadian ship canal will not be ready to make regular locking of vessels before the opening of navigation next season. The machinery for handling the gates is not yet in position and there is considerable dredging to be done at the upper end of the canal. Besides, a recent fire at the power house has made a delayed opening necessary.

### LOCKING THROUGH THE "SOO."

Canal or dock gates were never swung with so much celerity, nor have vessels been raised and lowered at such a rate as the record of the St. Mary's Falls canal showed for twenty-four hours last week. Up to midnight on October 24, 105 boats of generally large tonnage passed through the lock, exceeding the highest number previously attained by seven vessels.

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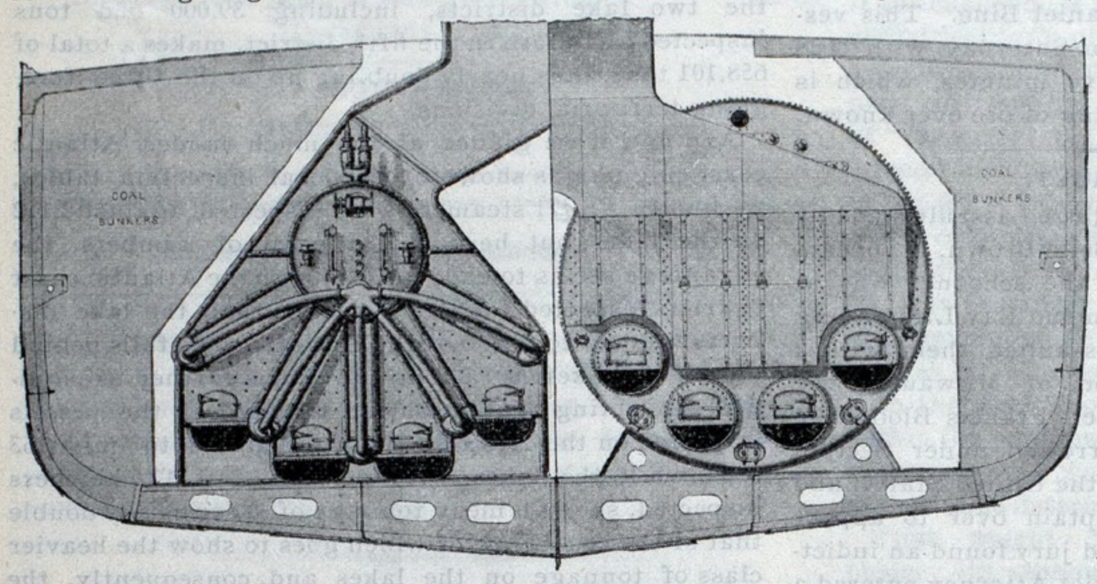
GEN. O. M. POE, Lieut. Col. Stickney and Capt. Marshall have been at Cincinnati during the week gathering facts on which to begin a formal preliminary survey of a route for the proposed Ohio and Erie Ship canal.

## A WATER TUBE MARINE BOILER.

(ILLUSTRATED.)

The marine boiler most commonly in use, of the shell and fire tube type, generally called the Scotch boiler, is well known and understood by engineers, it having held sway for so long a time against all competitors of other types. The water tube boiler has been adopted on smaller vessels, and is now being tried in some of the larger ones, and while, as a type, it is fast growing in favor, there has until now been no water tube boiler produced adapted to take the place of the Scotch type boiler, unit for unit, each boiler of the new type having the capacity of each boiler which it is to displace. The Scotch boiler admirably suits the conditions, viz.: a boiler having a great number of furnaces of a size




RELATIVE SPACE OCCUPIED BY MOSHER AND BY SCOTCH BOILER.

easily handled, with a very large amount of heating surface, which in some cases amounts to over six thousand square feet, and close on to two hundred square feet of grate surface in a single boiler.

Vast as these proportions are, experience has demonstrated them to be practicable in the Scotch type of boiler, while to attain this capacity with water tube boilers, as previously constructed, would require at least four boilers, each with a single furnace, and with a grate of such size as to be unmanageable for marine purposes, occupying a much larger floor space than the Scotch type.

The boiler herewith shown is intended to take the place of the Scotch boiler, and is adapted to carrying the highest pressures, as well as being constructed up to as large size as the Scotch type. All parts of it are cylindrical, or nearly so. The steam drum is cylindrical with bumped heads, and its diameter is slightly greater than the length of the longest tube, whereby the tubes may be withdrawn and replaced from within the drum. The tubes are straight, of somewhat varying lengths. Radiating from the lower segment of the steam drum are five nests or groups of tubes. Each group consists of four staggered rows of tubes, parallel to each other, and spaced far enough apart to permit the heated gases to pass freely between them. The lower ends of the tubes of each group are expanded into a water drum, each group having its own individual drum.

These drums are of a semi-cylindrical form, and are sufficiently large for a man to enter. The heads are riveted in, one end being fitted with a man-hole, while the other end is connected with the steam drum by a large return pipe for the downward circulation of the water. The length of each group of tubes is equal to the length of the adjoining furnace.

The casing at the ends and sides is protected by brick-work. The casing over the brick-work, as well as those parts over the boiler and extending to the base of the smokestack, is further protected by asbestos and magnesia, put on in sections, any one of which can be removed independently of the other. This boiler may be constructed with either one, two, three or four furnaces, single or double ended, the latter having eight furnaces.

Among the advantages claimed for this boiler are: a large decrease in weight compared with the fire tubular boilers now in use for the power and pressure, there being no large cylindrical shells of great thickness, and the quantity of water required for the proper performanee of it being much less than is necessary to be used in the marine boiler now in vogue.

The comparatively small amount of water which it is necessary to use is a benefit in other respects besides a saving in weight—there is much less water to heat up, requiring a corresponding decrease in the time consumed in raising steam.

There being no joints or seams in the fire space, the chance of leaks is reduced to a minimum, which renders this boiler admirably adapted for forced draft. It also admits of raising steam as soon as the fires are sufficiently under way to form it without injury to the boiler.

All parts of the boiler are accessible for repairs and cleaning, both inside and outside. Very few repairs will ever be necessary, there being no seams, joints, stay-bolts, rivets or flat surfaces exposed to the heated gases. The usual periodical calking of small leaks is entirely avoided and ample provision has been made to renew a tube expeditiously and effectively. The steam drum being slightly greater in diameter than the length of the longest tube, the old tube can be withdrawn and the new one inserted from within the drum without removing any part of the casing or interfering with any other tube. The water drums are large enough to permit a man to enter for the purpose of either cutting out an old tube or expanding a new one, as well as for the purpose of cleaning.

The steam drum is abundantly large for one or more men to perform any operation therein needed with perfect freedom.

The interiors of the tubes are readily accessible for cleaning within the steam drum. This operation, it is claimed, will seldom be necessary, however, as the upward circulation of the water in the tubes is so rapid as to prevent to a great degree the formation of deposits or incrustations on their interior surfaces, sweeping away the foreign matter held in suspension in the water, finally depositing it through the exterior return pipes in the water drums from whence it is blown out.

All the fire and heat spaces are accessible from the furnaces, and can be reached with a steam nozzle for the purpose of blowing the soot from the heating surfaces. All repairs or cleaning that will ever be required, can be done at sea by the regular men of the engineer's force, they all being very simple in their nature and not calling for special tools or skilled labor. There being no opposing strains produced by unequal expansion, all the tubes are straight, and are free to expand and contract without bringing any strains upon any part of the boiler.

The tubes being staggered, they present their surfaces directly to the action of the heated gases and serve to mix the gases in their passage across and between the tubes. The water within the tubes, as it is heated, rises toward the higher end and is delivered into the steam drum, where the steam is liberated and the residue of water, together with the feed water, flows down through the exterior return pipes to the water drums, whence it pursues its upward course again through the tubes.

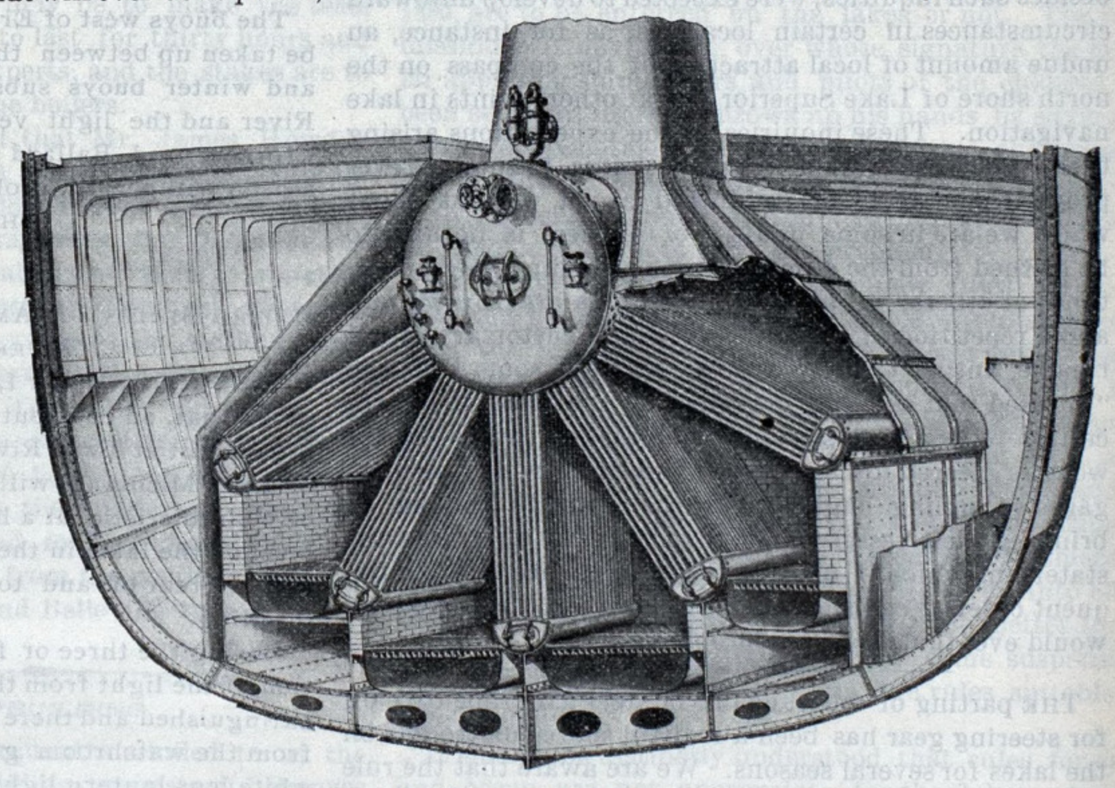
The releasing area into the steam drum being the full area of the tubes, a very rapid circulation of the water is maintained. The tubes being inclined or vertical, the steam rises freely within them, and the connections to the steam drum being the full area of the tubes, it is impossible for steam pockets to form at any point, consequently the heating surfaces are always covered with water, which by its rapid circulation preserves an even temperature throughout, thereby avoiding the strains due to unequal expansion.

No stays or braces of any kind are required or used, and the trouble which they often give by corrosion and leakage is obviated.

It is impossible to have a disastrous explosion with this boiler, it is claimed. As the tubes are the weakest part, the worst that could happen would be the giving way of a defective tube, due to corrosion or other cause, which would not be a serious matter, as only a small opening would be made.

This boiler occupies much less space than those of the Scotch type now in use, thereby increasing the cargo capacity in merchant steamers and coal bunker space in war vessels, and they are equally fitted for use afloat or ashore. They require no more attention, skill or care than the present ordinary type of boilers. The center of gravity is much lower than that of the Scotch type, the advantage of which in a steamship boiler is obvious. The coal bunker space is considerably increased, particularly in those parts that extend over the boiler, affording greater protection from shot in war vessels.

This boiler has recently been patented and will be manufactured by Mr. Charles D. Mosher, of No. 1 Broadway, New York. Mr. Mosher's previous achievements in the line of water tube marine boilers, especially those in use on some of our fastest yachts, are already well known to marine engineers.



MOSHER'S WATER TUBE MARINE BOILER.

## A PHANTOM SHIP.

The old Norsemen had a curious and vague tradition of a phantom ship, which they called Mannifaul. The French maritime chronicler Jal gives an account of her; so, likewise, does Thorpe in his work on "Northern Mythology." She was so gigantic that her masts were taller than the highest mountains. The captain rode about on horseback delivering his orders. The sailors going aloft as boys came down respectable middle-aged men and in the blocks about her rigging were dining halls where they sustained life during their heavenward wanderings. When passing through the strait of Dover on her way northward she stuck, but the captain, with ready invention, ordered her sides to be liberally besmeared with soap and she slipped through, leaving the cliffs of France and England white forever afterward.

Down to within a century ago this gigantic ship was known among English sailors as the Merry Dun of Dover, says Chamber's *Journal*, but she seems to have quite disappeared from the maritime lore of this country. The seamen of Normandy still believe in her existence and call her the Chasse Froude. They say that she is so immense that it takes her seven years to tack. On one occasion, when turning, her bowsprit swept away a whole battalion of soldiers from the Dover cliffs; while her stern boom was demolishing the forts of Calais. When she rolls, whales are tossed high and dry by the swell. Many extravagant particulars of this colossal fabric are given by Jal; and in "Les Traditions Populaires" of Sebillot, exaggeration runs into wild absurdity.

ALUMINUM as a material for ship's boats does not meet expectations. Recent tests at the Norfolk Navy Yard by the navy department have shown that the pure metal quickly fouls in salt water and that an alloy of nickel and steel not only fouls, but badly corrodes.

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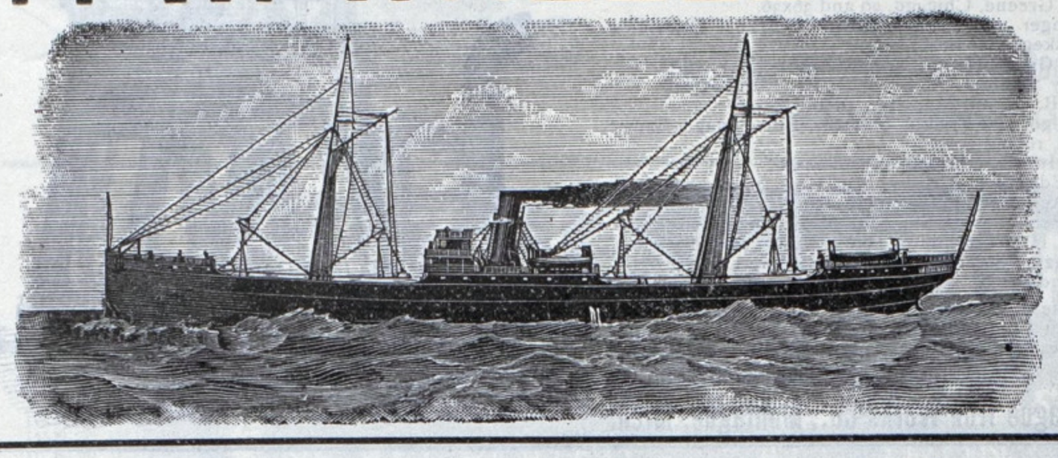

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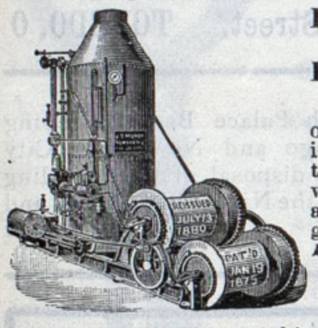

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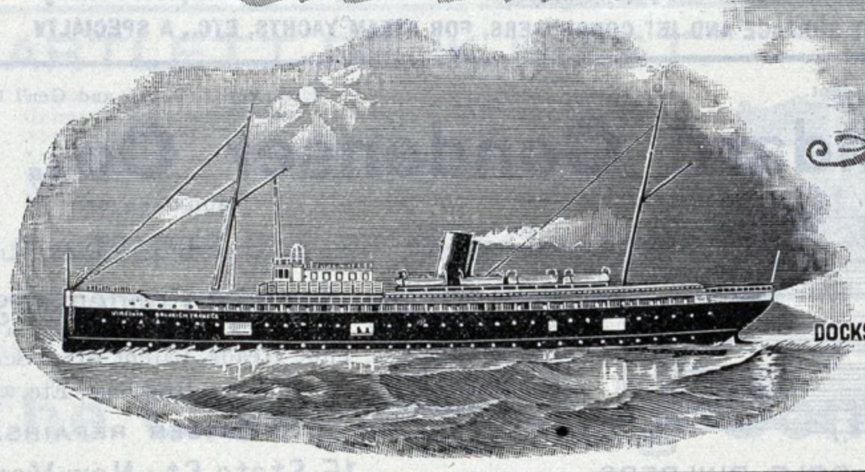

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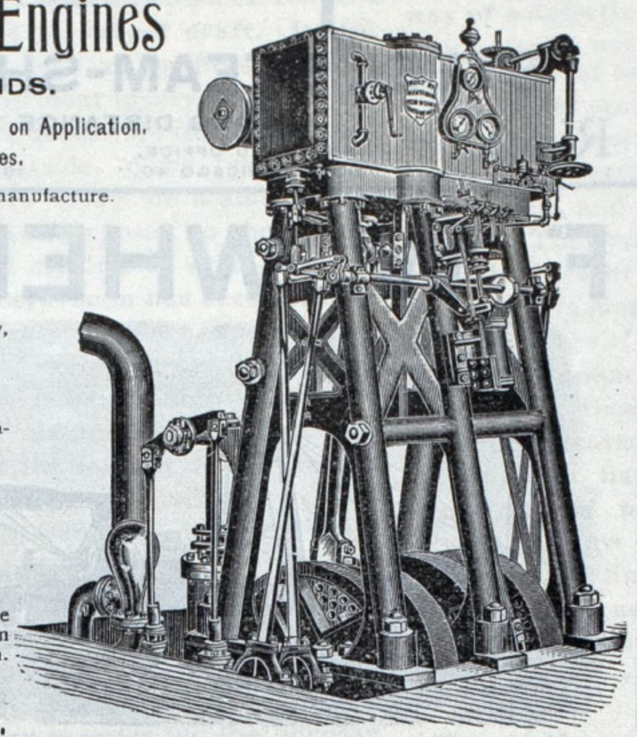

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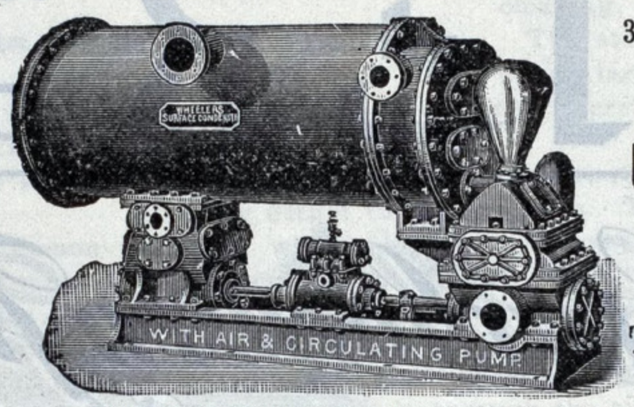


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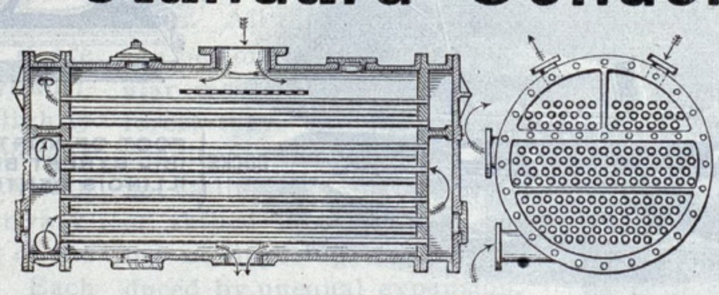

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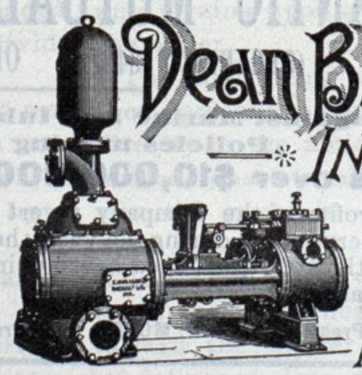

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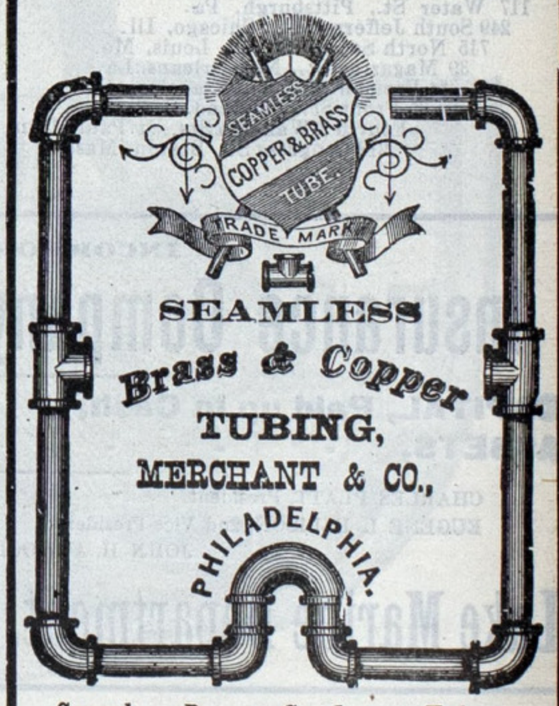


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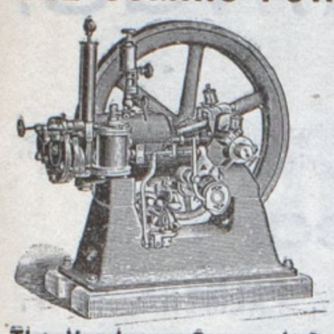

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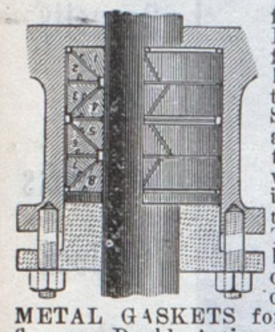

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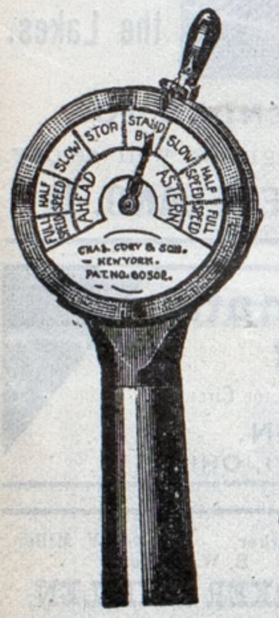


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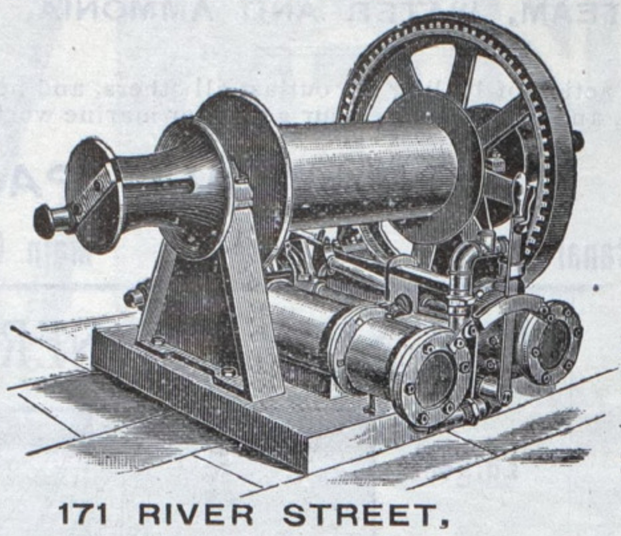

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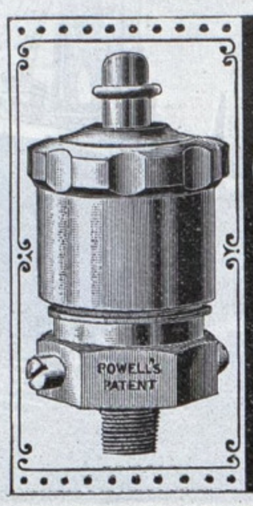


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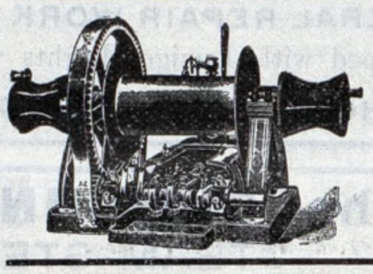

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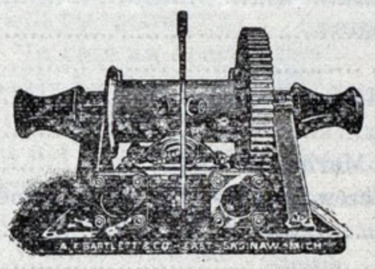


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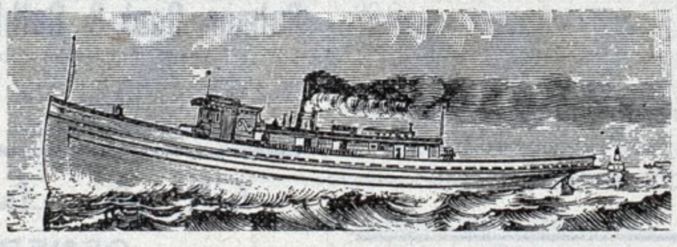

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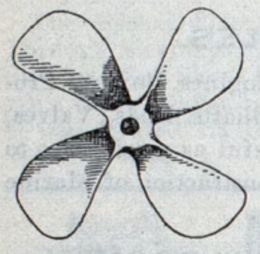

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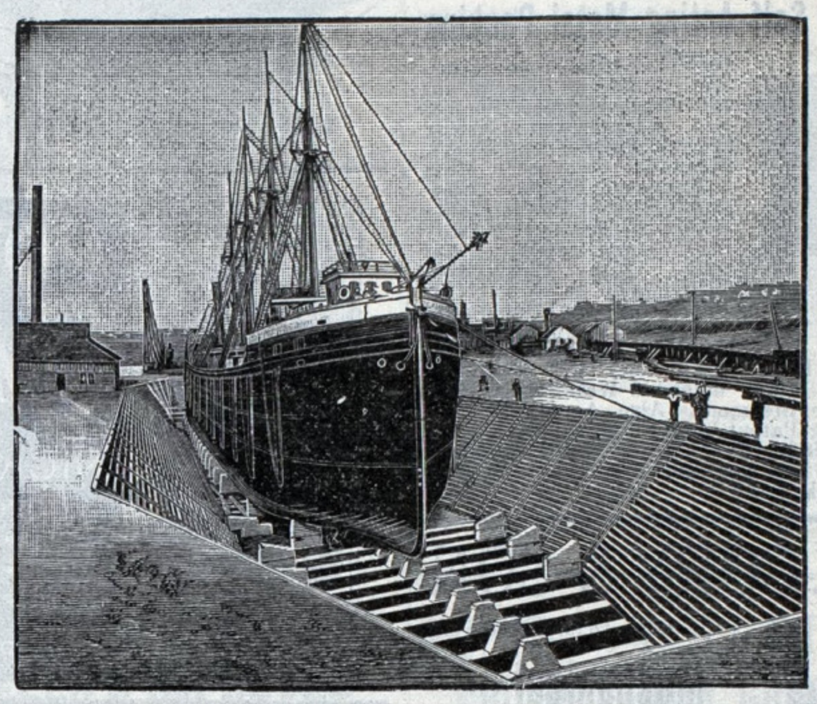

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